

## **REMARKS**

Claims 88, 89, 92, 93, 95-99, 104-109 are pending in this application. By this amendment, Claim 89 is cancelled and Claims 95 and 99 are amended. After amendment, claims 88, 92, 93, 95-99 and 104-109 are currently pending. Amendments are also made to the specification in response to the Examiner's objection. No new matter is added by the foregoing amendments. Thus, entering of the foregoing amendments and reconsideration of this application in view of the current amendments and following remarks are respectfully requested.

### **Election/Restrictions**

The Examiner disagrees with our arguments relating to the restriction requirement and made the restriction requirement final. To facilitate the prosecution and without conceding the correctness of the Examiner's restriction requirements, Applicant elects, with traverse, Claims 88, 89, 92, 93, 95-99, 104-109 for further examination.

### **Objection to Specification**

The Examiner objected to the specification for informalities. Applicant has amended the specification in accordance with the Examiner's suggestions, as follows:

At page 1, line 21, remove the underline of the phrase "Free Radicals in Biology and Medicine".

At page 2, line 1, remove the underline of the phrase "Oxidants, Antioxidants, and Free Radicals".

At page 14, lines 12-13, remove the underline of the phrase "Oxidants, Antioxidants, and Free Radicals".

At page 21, line 25, remove the underline of the phrase "Solid-Phase Peptide Synthesis"; at page 21, line 26, remove the underline of the phrase "The Practice of Peptide Synthesis".

At page 32, line 6, remove the underline of the phrase "Oxidants, Antioxidants, and Free Radicals".

At page 36, line 12, replace the phrase “Tween 80” with - - TWEEN 80 (polysorbate 80) - -.

At page 38, lines 28-29, remove the underline of the phrase “Remington’s Pharmaceutical Sciences”.

At page 44, line 32, remove the underline of the phrase “The peptides, analysis, synthesis, biology, vol.2”.

At page 45, lines 21-22, remove the underline of the phrase “PCR Protocols: A Guide to Methods and Applications”; at page 45, line 25, replace the word “Delbecco’s” with - - Dulbecco’s - -.

At page 50, line 21, replace the phrase “(Pharmacia)” with - - (PHARMACIA) --.

At page 59, line 8, replace the phrase “Qeva, Inc.” with - - QEVA, INC. --.

At page 59, line 21, replace the phrase “Bio-Rad Laboratories” with - - BIO-RAD LABORATORIES, INC. - -.

The above-mentioned amendments are format changes or made to correct typographical errors. No new matters are added by any of the above-mentioned amendments. Applicant respectfully submits that the Examiner’s objection to informalities in the specification is obviated by this amendment.

#### **Objection to Claim 89**

Claim 89 is objected to as containing multiple distinct inventions. Without conceding the correctness of the Examiner’s objection, Applicant has cancelled Claim 89 in an effort to expedite prosecution of the present application. Thus, Applicant respectfully submits that the Examiner’s objection to Claim 89 is obviated by this amendment.

Claim 95 is dependent from Claims 89 and 88. Since Claim 89 is cancelled, Claim 95 is amended to delete reference to Claim 89.

#### **Priority Support under 35 U.S.C. §112**

The Examiner is of the opinion that Claims 88, 89, 92, 93, 95-99 of this application are not entitled to claim priority to the filing date of U.S. Provisional Application Serial Number

60/166,381 because the provisional application allegedly fails to disclose the chemical composition capable of upregulating glutathione peroxidase (GSH-Px), as required under 35 U.S.C. §112. Applicant respectfully traverses.

The instant application describes certain chemical compositions which have antioxidative activities and which are capable of preventing or eliminating undesirable levels of reactive oxygen species and free radicals. As described in the application, one mechanism for doing so is the chemical compounds' abilities to upregulate or stimulate the activities of one or more antioxidative enzymes. The provisional application explicitly states glutathione peroxidase (GSH-Px) is one of these antioxidative enzymes, as follows:

Superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GSH-Px) are among the most important and studied of the antioxidative enzymes. These enzymes function in concert to detoxify ROS and free radicals. SOD is present in virtually all oxygen-respiring organisms where its major function is the dismutation (breakdown) of superoxide anion to hydrogen peroxide. Hydrogen peroxide, itself, is a highly reactive and oxidative molecule, which must be further reduced to avoid damage to cells and tissues. In the presence of the appropriate electron acceptors (hydrogen donors), CAT catalyzes the further reduction of hydrogen peroxide to water. In the presence of reduced glutathione (GSH), GSH-Px also mediates reduction of hydrogen peroxide to water by a separate pathway.

Provisional Application 60/166,381, p. 2, lns. 17-25.

The application further describes GSH as follows:

Superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GSH-Px) are among the most important and studied of the antioxidative enzymes. ... There are two distinct classes of GSH-Px: selenium-dependent and selenium independent. Furthermore, GSH-Px species can be found in the cytosol, as a membrane-associated protein, and as a circulating plasma protein.

Provisional Application 60/166,381, p. 2, ln. 17 to p. 3, ln. 18.

Thus, Applicant respectfully submits that the provisional application no. 60/166,381, which the instant application claims priority to, describes GSH-Px, and the instant application is entitled to a priority date of November 18, 1999.

**Rejection to Claim 99 under 35 U.S.C. §112**

Claim 99 is rejected as being indefinite under 35 U.S.C. §112, second paragraph, for reciting “a combination of a gene” in the claim. Applicant has amended Claim 99 to delete the phrase “, and a combination of a gene encoding superoxide dismutase and a gene encoding catalase”. In addition, Claim 99 has been amended to delete recitation to canceled Claim 90 and the phrase “encoding an antioxidative enzyme”, and add the word “said” before the word “gene”, and add the word “and” before the phrase “a gene encoding catalase”. As a result, Applicant respectfully requests the rejection to Claim 99 to be withdrawn.

**Rejection to Claims 88, 92, 93, 95-99, 104-106, 108-109 under 35 U.S.C. §103(a)**

The Examiner further rejected 0Claims 88, 92, 93, 95-99, 104-106, 108 and 109 as being obvious under 35 U.S.C. § 103 over U.S. Patent No. 6,627,601 (the “‘601 patent”), in view of Jornot et al. (and U.S. Patent No. 5,972,985 (“Thomas”). Applicant respectfully traverses.

The ‘601 patent and the instant application are by the same sole inventor, Dr. Victor E. Shashoua. The ‘601 patent could be prior art only under 35 U.S.C. § 102(b). The application upon which the ‘601 patent was issued was published on October 25, 2001 and the corresponding PCT application (WO 01/36454) was published on May 25, 2001. Both dates are after not one year before the priority date (November 18, 1999) and the effective filing date (November 17, 2000) of the instant application. Thus, Applicant respectfully submits that the ‘601 patent is not prior art to the instant application.

Jornot et al describes upregulation of glutathione peroxidase due to the presence of tumor promoting agent responsive elements (TREs), which are the binding sites for the transcription factor activator protein-1 (AP-1). But Jornot et al. does not the use of any peptide compound, which are described in the instant application, to upregulate the activities of glutathione peroxidase. Neither does Jornot et al. provide any teachings as to how to find a peptide

compound capable of preventing or eliminating reactive oxygen species and free radicals. Thus, Jornot et al does not make the invention described in the instant application obvious.

Thomas describes nutraceutical compositions useful as a dietary supplement which may function as antioxidant/free radical scavengers and which may also have a cytoprotective effect. The compositions described in Thomas contain single amino acid, histidine. Thomas does not teach the use of a peptide compound to eliminate or prevent reactive oxygen species or free radicals. Thus, the invention described in the instant application will not be obvious for a person skilled in the art in light of Thomas.

Thus, Applicant traverses the Examiner's rejection of Claims 88, 92, 93, 95-99, 104-106, 108 and 109 and respectfully requests the rejection to be withdrawn.

### CONCLUSION

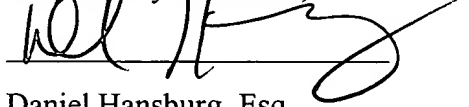
Applicant believes that he has fully responded to the Examiner's concerns and that each of the claims is in condition for immediate allowance. Applicant respectfully requests reconsideration and allowance of all pending claims.

No fee is required by this amendment. However, in the event that any fee is required, the Commissioner is hereby authorized to charge such fees, which may be required, or to credit any overpayment, to Deposit Account No. 02-4270.

In the event that the Examiner has any further concerns, Applicant requests a call to be made to Applicant's attorney at the number listed below.

Dated: 15 April 2004

Respectfully submitted,



Daniel Hansburg, Esq.

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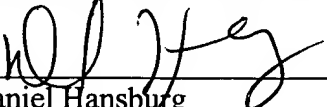
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Daniel Hansburg

15 April 2004  
Date